



DOE's Building Technologies and Federal Energy Management Programs are working together to advance clean energy technologies.



To save taxpayer dollars and to place the federal government at the forefront of energy efficiency, DOE's Federal Energy Management Program assists federal agencies to reduce energy costs.



DOE Building Technologies Programs

Buildings that are more energy-efficient, comfortable, and affordable...that's the goal of DOE's Buildings for the 21st Century Program, which accelerates the development and wide application of energy efficiency measures.

DEFENSE LOGISTICS AGENCY



The mission of the Defense Logistics Agency is to provide best value logistics and contract management support to America's Armed Forces, in peace and war...around the clock, around the world.

HIGH-EFFICIENCY UNITARY AIR CONDITIONER TECHNOLOGY PROCUREMENT

Winners Selected in Air Conditioner Competition

The U.S. Department of Energy (DOE) has awarded ordering agreements for several high-efficiency rooftop air conditioners offered by Lennox Industries Inc. and Global Energy Group under a competitive procurement. The winning products were selected based on their low cost of ownership, taking into account both initial price and annual energy consumption. The selected products are available to both government and private sector buyers at special prices.

The DOE competition responded to the need for greater availability of high-efficiency commercial packaged rooftop air conditioners for low-rise commercial-style buildings such as retail stores, schools, clinics, and offices.

Lennox Industries Inc.

Model	Btu/hr	EER
LCA090H	90,000	11.3
LCA102H	101,000	11.0
LCA120H	120,000	11.0

Global Energy Group

Model	Btu/hr	EER
PH007C	88,000	13.5
PH010C	115,000	13.4

Background

Cooling and heating account for more than half of the total energy operation cost for commercial and government buildings. With their relatively low initial cost, simple design and small footprint, unitary "rooftop" air conditioning systems are used to cool two-thirds of all commercial space in the United States. Such units dominate the market for small and medium size low-rise buildings, accounting for 60% of cooling energy and nearly one-third of total heating and cooling energy—over one quadrillion Btus per year.

The U.S. Department of Energy's Federal Energy Management (FEMP) and Building Technologies Programs are cooperating with the Defense Logistics Agency (DLA; an arm of the U.S. Department of Defense) to stimulate buyer demand for a new generation of rooftop air conditioners that maximize cost-effectiveness, energy efficiency and performance. Pacific Northwest National Laboratory (PNNL) is providing technical and administrative support and promoting installation of winning units.



New, high-efficiency unitary air conditioners are at least 20% more efficient than required by the Federal standard.

U.S. Government buyers may order through the DLA. Contact Douglas Steinmetz **(215) 737-7940** or Chet Evanitsky, Maintenance Repair and Operations Services **(215) 737-8048**. Non-federal government and private sector buyers should contact the winning manufacturers directly. For contact information and product specifications, please visit www.pnl.gov/uac.

HIGH-EFFICIENCY UNITARY AIR CONDITIONERS

For more information about
DOE Building Technology and
Federal Energy Management
Programs, contact:
Energy Efficiency and Renewable
Energy Clearinghouse
1-800-DOE-3732
www.eren.doe.gov/buildings

For Program and Product
Information on the Web:
www.pnl.gov/uac

[www.eren.doe.gov/buildings/
emergingtech](http://www.eren.doe.gov/buildings/emergingtech)

www.eren.doe.gov/femp

[www.dsdp.dla.mil/gi/general/
eUnitary/unitary.htm](http://www.dsdp.dla.mil/gi/general/eUnitary/unitary.htm)

For program information:
Douglas Steinmetz
Phone: (215) 737-7940
or
Chet Evanitsky
Phone: (215) 737-8048
Maintenance Repair and
Operations Services
Defense Supply Center
Philadelphia
700 Robbins Avenue
Philadelphia, PA 19111-5096
FAX: (215) 737-8605

Brad Hollomon
Pacific Northwest National
Laboratory
901 D Street, SW, Suite 900
Washington, DC 20024-2115
Phone: (202) 646-5043
FAX: (202) 646-7837
hollomon@pnl.gov

Alison Thomas
U.S. Department of Energy
Federal Energy Management
Program EE-2L
1000 Independence Ave., SW
Washington, DC 20585-0121
Phone: (202) 586-2099
FAX: (202) 586-3000
alison.thomas@ee.doe.gov

James Brodrick
U.S. Department of Energy
Building Technologies
Programs EE-2J
1000 Independence Ave., SW
Washington, DC 20585-0121
Phone: (202) 586-1856
FAX: (202) 586-4617
james.brodrick@ee.doe.gov



Printed with renewable – source
ink on paper containing at least
50% wastepaper, including
20% post consumer waste.

November 2002

Objectives

The objective of the High-Efficiency Unitary Air Conditioner Technology Procurement is to help increase market penetration of a new generation of air conditioning equipment to provide customers with energy and peak power savings through

- ✓ Higher overall efficiency
- ✓ Lower energy consumption
- ✓ Lower first-cost compared to other high-efficiency units.

Technology Procurement

Technology procurement is a method to “pull” new technologies and products into the marketplace through competitive procurements backed by large volume buyers.

On behalf of DOE, PNNL issued a competitive Request for Proposals (RFP) calling for unitary rooftop air conditioners in the 65,000 to 135,000 Btu/h cooling capacity range. Proposals were evaluated on the basis of life-cycle cost, estimated from manufacturers’ performance data using a cost estimator tool developed by PNNL (available on the project web site at www.pnl.gov/uac). Federal buyers can order winning units through DLA. Other users, including state and local government agencies, institutional

facilities, and private companies, can order through a separate basic ordering agreement, administered by PNNL, specifying prices, warranties and other terms. Visit the website for more information on ordering.

Energy Efficiency Standards

The unitary air conditioner procurement complements mandatory and voluntary energy-efficiency standards for commercial air conditioning equipment. Federal efficiency standards for packaged rooftop air conditioners were established by Congress in the Energy Policy Act of 1992. The Consortium for Energy Efficiency (CEE), a non-governmental organization set up to coordinate utility and other market transformation efforts, is promoting a voluntary efficiency criterion that exceeds the federal standards. (See table below.)

ASHRAE revised its voluntary standard to CEE’s Tier I level in 2001; mandatory federal standards currently under consideration by DOE may be more stringent. The DOE/EPA ENERGY STAR® program now offers a label for qualifying equipment with efficiency ratings of at least Tier II level. Also, E.O. 13123 generally requires that federal agencies purchase equipment that meets or exceeds ENERGY STAR® levels. Currently, about 18% of commercially available rooftop air conditioner models meet the CEE Tier II levels.

Comparison of Efficiency Criteria

	ASHRAE 90.1-1989 (1992 Fed. Standard)		ASHRAE 90.1-1999 (Effective 10/29/2001)		Consortium for Energy Efficiency		
Size Range (kBtu/hr)	Full-load (EER)	Part-load (IPLV)	Full-load (EER)	Part-load (IPLV)	Efficiency Level	Full-load (EER)	Part-load (IPLV)
65 – 135	8.9	8.3	10.3	10.6	Tier I	10.3	10.6
	—	—	—	—	Tier II	11.0*	11.4
135 – 240	8.5	7.5	9.7	9.9	Tier I	9.7	9.9
	—	—	—	—	Tier II	10.8*	11.2

EER—Energy Efficiency Rating IPLV—Integrated Part-Load Value *FEMP Recommendations

For more information, visit www.pnl.gov/uac.